

WHAT IS CLAIMED IS:

1. A method for preparing a reactive tinting compound for tinted contact lens comprising the step of:
 - (a) carrying out a reaction of a first compound with a second compound to generate a product of reactive tinting compound,
wherein
the first compound is a hydrophilic compound with pendant hydroxyl and unsaturated vinyl groups, and
the second compound is a radiation-absorbing and water soluble dye with substituted fluoro-chloropyrimidine or β -sulphatoethylsulphone reactive group; and
 - (b) recovering the product after the reaction is completed.
2. The method according to claim 1, wherein the molar ratio of the first compound to the second compound is 1/1 to 5/1.
3. The method according to claim 1, wherein the first compound is selected from a group consisting of 2-hydroxyethyl methacrylate, hydroxyethyl acrylate, and glycerol methacrylate.
4. The method according to claim 1, wherein the second compound with substituted difluoro-chloropyrimidine reactive group is C.I. Reactive Blue 114.
5. The method according to claim 1, wherein the second compound with substituted β -sulphatoethylsulphone reactive group is selected from a group consisting of C. I. Reactive Yellow 15, C. I. Reactive Red 180, C. I. Reactive Blue 19, and C. I. Reactive Blue 21.
6. The method according to claim 1, wherein step (a) comprises the steps of:
 - (i) preparing a mixture of the first compound, a base compound, and a polymerization inhibitor in water;
 - (ii) mixing the second compound with the mixture of step (i); and
 - (iii) initiating a synthesis reaction of the reactive tinting compound under heating.

7. The method according to claim 6, wherein the molar ratio of the first compound to the second compound is 1/1 to 5/1.
8. The method according to claim 6, wherein the first compound is selected from a group consisting of 2-hydroxyethyl methacrylate, hydroxyethyl acrylate, and glycerol methacrylate.
9. The method according to claim 6, wherein the second compound is C. I. Reactive Blue 114 (RB 114).
10. The method according to claim 6, wherein the base compound is selected from a group consisting of ammonia, alkaline metal hydroxide, and salt of alkaline metal.
11. The method according to claim 6, wherein the molar ratio of the base compound to the second compound is 1/1 to 5/1.
12. The method according to claim 6, wherein the polymerization inhibitor is selected from a group consisting of hydroquinone, methyl hydroquinone, hydroquinone monomethyl ether, catechol and pyrogallol.
13. The method according to claim 6, wherein the polymerization inhibitor is 0.02 to 3% based on the weight of the first compound.
14. The method according to claim 6, wherein the reaction is at 50 to 100 °C.
15. The method according to claim 6, wherein the reaction is for 12 to 24 hours.
16. The method according to claim 1, step (a) comprises the steps of
 - i) activating the second compound with a base compound in water;
 - ii) mixing the first compound with the resulting mixture of step i);
 - iii) optionally mixing a polymerization inhibitor with the mixture of step ii); and
 - iv) initiating a synthesis reaction of the reactive tinting compound.
17. The method according to claim 16, wherein the activating step is at 30 to 80 °C.
18. The method according to claim 16, wherein the activating step is for 0.5 to 4 hours.

19. The method according to claim 16, wherein the molar ratio of the first compound to the second compound is 1/1 to 5/1.
20. The method according to claim 16, wherein the first compound is selected from a group consisting of 2-hydroxyethyl methacrylate, hydroxyethyl acrylate, and glycerol methacrylate.
21. The method according to claim 16, wherein the second compound is selected from a group consisting of C. I. Reactive Yellow 15, C. I. Reactive Red 180, C. I. Reactive Blue 19, and C. I. Reactive Blue 21.
22. The method according to claim 16, wherein the base compound is selected from a group consisting of ammonia, alkaline metal hydroxide and salt of alkaline metal.
23. The method according to claim 16, wherein the molar ratio of the base compound to the second compound is 1/1 to 5/1.
24. The method according to claim 16, wherein the polymerization inhibitor is selected from a group consisting of hydroquinone, methyl hydroquinone, hydroquinone monomethyl ether, catechol and pyrogallol.
25. The method according to claim 16, wherein the polymerization inhibitor is 0.02 to 3% based on the weight of the first compound.
26. The method according to claim 16, wherein the reaction is at room temperature to 50 °C.
27. The method according to claim 16, wherein the reaction is for 12 to 24 hours.
28. A reactive tinting compound which is prepared by the steps comprising
 - (1) carrying out a reaction of a first compound with a second compound to generate a product of reactive tinting compound, wherein the first compound is a hydrophilic compound with pendant hydroxyl and unsaturated vinyl groups, and

the second compound is a radiation-absorbing and water soluble dye with substituted fluoro-chloropyrimidine or β -sulphatoethylsulphone reactive group; and

- (2) recovering the reactive tinting compound after the reaction is completed.

29. A tinted contact lens comprising a hydrophilic monomer material, an inert diluent, an acrylic crosslinker with multiple unsaturated vinyl groups and a reactive tinting compound which is prepared by the steps comprising

- a. carrying out a reaction of a first compound with a second compound to generate a product of reactive tinting compound,

wherein

the first compound is a hydrophilic compound with pendant hydroxyl and unsaturated vinyl groups, and

the second compound is a radiation-absorbing and water soluble dye with substituted fluoro-chloropyrimidine or β -sulphatoethylsulphone reactive group; and

- b. recovering the product after the reaction is completed.

30. The lens of claim 29 wherein the amount of the reactive tinting compound is 0.01 to 0.25 % based on the weight of the hydrophilic monomer material.

31. The lens of claim 29 wherein the hydrophilic monomer material comprises hydroxy ethyl methacrylate, methacrylic acid, and N-vinyl pyrrolidone.

32. The lens of claim 29 wherein the acrylic crosslinker with multiple unsaturated vinyl groups is selected from a group consisting of ethylene glycol dimethacrylate and trimethylolpropane trimethacrylate.